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| EXAMINER | |
|---|---|
| BARNHART, LORA ELIZABETH | |

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| 1651 | |

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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

| Office Action Summary | Application No. | Applicant(s) | |
|---|---|---|---|
| | 10/530,224 | SANDIG ET AL. | |
| | Examiner | Art Unit | |
| | Lora E. Barnhart | 1651 | |

*-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --*

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1)☒ Responsive to communication(s) filed on *15 January 2009*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4)☒ Claim(s) *18-26 and 28-53* is/are pending in the application.

4a) Of the above claim(s) *52 and 53* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *18-26 and 28-51* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

**Application Papers**

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

## DETAILED ACTION

### *Response to Amendments*

Applicant's amendments filed 1/15/09 to claims 18, 33, 38, 42, 45, 48, 50, and 51 have been entered. Claim 27 has been cancelled. No claims have been added in this reply. Claims 18-26 and 28-53 remain pending in the current application, of which claims 18-26 and 28-51 are being considered on their merits. Claims 52 and 53 remain withdrawn from consideration at this time. References not included with this Office action can be found in a prior action. Any rejections or objections of record not particularly addressed below are withdrawn in light of the claim amendments and applicant's comments.

### *Election/Restrictions*

The PCT Administrative Instructions, Annex B, Part 1(f), indicate that a single claim that defines alternatives (i.e., a Markush claim) is governed by Rule 13.2 and that the requirements of Rule 13.2 pertaining to these claims are satisfied "when the alternatives are of a similar nature." Section (f) goes on to discuss the criteria by which alternatives are determined to be of a similar nature. Part 1(c) indicates that dependent claims avoid lack of unity considerations only if the independent claim is free of the prior art. Therefore, since the claims are currently free of the prior art, all species have been examined. However, if the claims are amended such that prior art applies, the species election requirement may be imposed on the claims at that time.

### *Claim Rejections - 35 USC § 112*

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 18-51 remain rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

The claims are interpreted (see section 112, second paragraph, rejections below) as being broadly drawn to a method of preparing a cell that expresses any secreted protein such that it has an "essentially human" glycosylation pattern, said method including identifying a cell that is related to B lymphocytes and expresses immunoglobulin (Ig) that is not essential to the function of said cell; replacing the Ig gene with a first DNA sequence containing a recombinase recognition site (RRS); and administering a recombinase and a second DNA sequence, wherein the recombinase recognizes the first DNA sequence already integrated into the cell and wherein the second DNA sequence encodes the secreted protein and is integrated into the cell by the action of said recombinase. Alternately, the claims appear to encompass (again, see section 112, second paragraph, rejections below) an embodiment comprising a method of preparing a cell that expresses any secreted protein such that it has an "essentially human" glycosylation pattern, said method including identifying a cell that is related to B lymphocytes and expresses immunoglobulin (Ig) that is not essential to the function of said cell by directly replacing the Ig gene with a DNA sequence that encodes

the secreted protein. In some dependent claims, the cell is a human heterohybridoma cell such as H-CB-P1 or PBG04 and the Ig gene is an IgH locus. In some dependent claims, the locus of the Ig gene provides an essentially human glycosylation pattern (presumably, for the target gene product). In some dependent claims, the RRS is frt and the recombinase is flp. In some dependent claims, the target gene product is an antibody. Some claims are drawn to the cell per se. One claim is drawn to a method of using the cell to produce the target gene product.

The specification in view of the art provides insufficient guidance for the skilled artisan to carry out the invention across its entire scope. Fussenegger (1999, *Trends in Biotechnology* 17: 35-42; reference A5 on IDS of 7/21/05) teaches that glycosylation is a post-translational event for secreted proteins (page 40, column 1, paragraph 2 under section entitled "Glycosylation..."). Glycosylation occurs at particular amino acids in the endoplasmic reticulum and Golgi apparatus, where proteins are processed for secretion (ibid.); however, not all proteins are glycosylated. Furthermore, Fussenegger teaches that glycosylation patterns are affected by many parameters, including the sequence of the polypeptide chain, the host cell and its set of glycosyltransferases and glycosidases, and the environment of the host cell (page 40, column 1, last paragraph). As discussed above, most of the instant claims place no particular limit on the amino acid sequence of the target gene product, so altering the sequence to change the glycosylation pattern of the product does not appear to be within the scope of this invention.

Even if the scope of the product were narrowed to an antibody, the disclosure in view of the art would still fail to enable the entire invention. Yoo et al. (2002, *Journal of*

*Immunological Methods* 261: 1-20) teach that around the time of the invention, it was known that different mouse and human hybridomas, myelomas, and hetero-hybridomas yield IgG chains with different glycosylation patterns (see section 5.4 at page 9). Specifically, Yoo teaches that mouse-human hetero-hybridomas add a particular glycan to IgG but mouse NSO myelomas and rat myelomas do not (ibid.). Regarding claim 22, which limits the cell to a hetero-hybridoma, and claims 23, 44, 46, 48, and 49, which limit the cell to particular hetero-hybridoma lines, Yoo teaches that mouse-human hetero-hybridomas generally follow the glycosylation pattern characteristic of the mouse parental line (ibid.). The teachings of Yoo and Fussenegger indicate that around the time of the invention, selecting a cell that is capable of producing a given target gene product such that it has an "essentially human" glycosylation pattern would have constituted undue experimentation, since the glycosylation pattern imparted to a polypeptide by a given cell line was not predictable.

The requirement that the gene product be "a secreted protein" is a functional limitation that does not appear to necessarily and clearly limit the structure of the gene product, so determining an "essentially human" glycosylation pattern for every protein that may be secreted under some unstated conditions would require undue experimentation in view of the teachings of the contemporaneous art. For example, the specification does not address how to produce an "essentially human" glycosylation pattern for a fusion protein that comprises a secretion signal attached to a protein that is not normally secreted.

M.P.E.P. § 2164.03 reads, "The amount of guidance or direction needed to enable the invention is inversely related to the amount of knowledge in the state of the art as well as the predictability in the art. *In re Fisher*, 427 F.2d 833, 839, 166 USPQ 18, 24 (CCPA 1970). The 'amount of guidance or direction' refers to that information in the application, as originally filed, that teaches exactly how to make or use the invention. The more that is known in the prior art about the nature of the invention, how to make, and how to use the invention, and the more predictable the art is, the less information needs to be explicitly stated in the specification. **In contrast, if little is known in the prior art about the nature of the invention and the art is unpredictable, the specification would need more detail as to how to make and use the invention in order to be enabling.** See, *e.g., Chiron Corp. v. Genentech Inc.*, 363 F.3d 1247, 1254, 70 USPQ2d 1321, 1326 (Fed. Cir. 2004)…In applications directed to inventions in arts where the results are unpredictable, the disclosure of a single species usually does not provide an adequate basis to support generic claims. In cases involving unpredictable factors, such as most chemical reactions and physiological activity, more may be required." As the above discussion illustrates, the glycosylation patterns imparted by at least a few B cell-derived cell lines on recombinant proteins were unpredictable at the time of the invention, so treatment of such diseases must be considered "nascent," and the amount of guidance required is relatively high.

Applicants present a single working embodiment in which a targeting vector including frt RRSs, "the place holder gene hobFc," and a gene encoding blasticidin (i.e., pVHCμCEShobFcblas) is transfected into H-CB-P1, a hetero-hybridoma cell, such that

it is inserted at a rearranged Ig locus such that the Ig locus is replaced with the targeting vector, and yielding clone PBG04 (page 27, paragraph 2, through page 28, paragraph 3; page 16, last paragraph). PBG04 is then transfected with two vectors: one that expresses flp recombinase (pflp) and one that includes frt RRSs and a gene for GFP, green fluorescent protein (Example 4 at page 31, paragraph 2), resulting in green cells and indicating that recombination between the frt sequences occurred. At page 31, last paragraph et seq., applicants discuss "leptin Fc from PB604," but **it is not clear whether this product is a natural product of PB604 or whether it is made using a particular targeting vector.** The specification does not appear to include an example in which the claimed method is practiced.

While a singular, narrow working embodiment cannot be a sole factor in determining enablement, its limited showing, in light of the unpredictable nature of the art and the lack of direction applicants present, provides additional weight to the lack of enablement in consideration of the *Wands* factors as a whole. Thus, one of ordinary skill in the art would not have a reasonable expectation of success in using the claimed invention.

Applicant alleges that human hybridomas necessarily produce proteins with human glycosylation (Reply, page 9, section B; and page 10, section C). Applicant alleges that the cell lines discussed in the working examples produce proteins with "acceptable glycosylation for human use" (Reply, page 11, section C; and page 12, section D). These arguments have been fully considered, but they are not persuasive.

Regarding the glycosylation of proteins made in human cells, it is submitted that the claims do not limit the cell employed for the method to a human cell. Claim 18 allows that the cell may be either a human cell or a human hybrid cell, and claims 22 and 23 include embodiments in which the cell is a human-mouse hetero-hybridoma. The instant working examples employ human-mouse hetero-hybridomas. The previously cited Yoo reference explicitly establishes that the source of the cell has a direct effect on glycosylation, and applicant has provided no evidence to refute these findings. Applicant's comments that "a human hybridoma will always produce an antibody with human glycosylation" (see page 9, last paragraph) are merely the argument of counsel and are unsupported by evidence or declarations of those skilled in the art. **Attorney argument is not evidence unless it is an admission, in which case, an examiner may use the admission in making a rejection.** See M.P.E.P. § 2129 and § 2144.03 for a discussion of admissions as prior art. Counsel's arguments cannot take the place of objective evidence. *In re Schulze*, 145 USPQ 716 (CCPA 1965); *In re Cole*, 140 USPQ 230 (CCPA 1964); and especially *In re Langer*, 183 USPQ 288 (CCPA 1974). See M.P.E.P. § 716.01(c) for examples of attorney statements that are not evidence and that must be supported by an appropriate affidavit or declaration. In this case, applicant's comments at page 9 could be construed as an admission that the selection of the cell to employ in making recombinant proteins with glycosylation patterns that are in some way characteristic of that cell's species would have constituted routine experimentation at the time of the invention; the examiner declines to interpret the remarks as such at this time. However, if applicant wishes to clarify that the

statements in the reply constitute an admission, the examiner may determine that an art rejection is in order.

Applicant's comment that the skilled artisan should not be required to "predict the final glycosylation pattern for any given cell" (see page 11, paragraph 2) is not pertinent to the matter being claimed. At issue here is whether, at the time of the application, the skilled artisan could have used routine experimentation to identify cells to employ in the method. The basis of this rejection is the fact that at the time of filing, artisans had not agreed on the scope of the term "essentially human glycosylation pattern," so identifying cells that yield such an undefined pattern would have constituted undue experimentation. Applicant's comments appear to equate the presence or absence or a certain level of certain sugar linkages with "essentially human" patterns (see page 11, last paragraph, and page 12, paragraph 2), but the claims are not so limited, and no evidence has been provided that the skilled artisan would interpret "an essentially human glycosylation pattern" to be defined as "the absence or a particular level of $\alpha$-1,3-galactose linkages." It is noted that the specification identifies a single mouse-human hetero-hybridoma that secretes a leptin-Fc fusion protein with a particular glycosylation pattern; the specification provides no guidance for identifying other cells, no evidence that leptin-Fc is a representative sample of all secreted proteins, and no evidence that the glycosylation pattern at page 33, table 6 (for example) is "essentially human." Applicant is attempting to import limitations from the specification into the claims, which is improper. See M.P.E.P. § 2111.01. The statement that "there was only 1.3% $\alpha$1,3 galactose [sic] on leptin-Fc derived from PBG04 would be a reasonable

indication that other proteins expressed using this method would also have low $\alpha$1,3 galactose" is unsubstantiated by evidence that the single cell type and single protein exemplified are representative of all possible embodiments. The specification does not provide sufficient guidance for carrying out the claimed method across its entire scope.

Applicant's comments regarding the ability of the claimed method to provide "acceptable glycosylation for human use" (page 11, paragraph 2) and/or "therapeutic proteins" (page 12, paragraph 2) regard limitations not recited in the claims, as do the remarks about "antibodies" (page 9, last paragraph). All that is required is that the method yield "a secreted protein" with "an essentially human glycosylation pattern." Again, the comments are not commensurate in scope with the claims.

The examiner wishes to point out that the term "place holder gene" ascribed by applicant to the Office action (Reply, page 12, first paragraph) is a direct quotation of the as-filed specification at page 27, paragraph 3.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 18-51 remain rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 18 is drawn to a method for making a cell that expresses a product "having an essentially human glycosylation pattern," but the scope of this limitation is not clear. First, it is not clear what constitutes a "human glycosylation pattern," because the specification and art do not indicate that there is a particular pattern unique to humans.

Furthermore, the scope of the limitation "essentially human" is unclear. Clarification is required. Applicant alleges that the standard for determining compliance with section 112, second paragraph, requires a determination of whether the skilled artisan would "infringe the claim" by performing a particular method and that this infringement analysis is "the purpose of the clarity requirement" (Reply, page 13, paragraph 2). Applicant further alleges that since the phrase is in the preamble, it is not a step of the claimed method and, therefore, does not limit it (ibid.). These arguments have been fully considered, but they are not persuasive.

Applicant's comments on this topic are confusing because they do not appear to be based on the statutory requirements of section 112, second paragraph. Nowhere does this statute make a "clarity requirement," but rather mandates that the claims particularly point out and distinctly claim the subject matter that is regarded as the invention. The metes and bounds of the phrase "essentially human glycosylation pattern" is simply not established in the specification, the claims, or the art. Furthermore, applicant's reference to "infringement" has no place in the prosecution stage of a patent.

Finally, applicant's contention that all limitations in the preamble merely constitute a "preferred use of the claimed method" is completely without merit. M.P.E.P. § 2111.02 clearly indicates that the significance of the preamble must be analyzed on a case-by-case basis. "[A] claim preamble has the import that the claim as a whole suggests for it." *Bell Communications Research, Inc. v. Vitalink Communications Corp.*, 55 F.3d 615, 620, 34 USPQ2d 1816, 1820 (Fed. Cir. 1995). "If the claim preamble,

when read in the context of the entire claim, recites limitations of the claim, or, if the claim preamble is 'necessary to give life, meaning, and vitality' to the claim, then the claim preamble should be construed as if in the balance of the claim." *Pitney Bowes, Inc. v. Hewlett-Packard Co.*, 182 F.3d 1298, 1305, 51 USPQ2d 1161, 1165-66 (Fed. Cir. 1999). In *Jansen v. Rexall Sundown, Inc.*, 342 F.3d 1329, 1333-34, 68 USPQ2d 1154, 1158 (Fed. Cir. 2003), the court held that the preamble in the disputed method claim was not merely a statement of effect that may or may not be desired or appreciated, but rather was a statement of the intentional purpose for which the method must be performed. M.P.E.P. § 2111.02 continues, "During examination, statements in the preamble reciting the purpose or intended use of the claimed invention must be evaluated to determine whether the recited purpose or intended use results in a structural difference (or, in the case of process claims, manipulative difference) between the claimed invention and the prior art. If so, the recitation serves to limit the claim," referring to *In re Otto*, 312 F.2d 937, 938, 136 USPQ 458, 459 (CCPA 1963). In this case, applicant's comments as a whole indicate that the glycosylation pattern of proteins yielded by the instant method is, in fact, the essence of the invention. Applicant cannot on one hand maintain that a limitation in the preamble has no weight while elsewhere in the same reply (and even within the same paragraph) alleging that this limitation is the basis for patentability and utility of the claimed invention.

In short, the metes and bounds of the limitation "essentially human glycosylation pattern" in the independent claims cannot be determined. Clarification is still required.

Claim 18 is further indefinite because the amendments to step (c) do not particularly point out the active steps involved. It is not clear whether within this step, the second functional DNA sequence is administered with the recombinase or recognized (along with the RRS) by the recombinase. If applicant means to require that the second functional DNA sequence be integrated into the cell prior to the administration of the recombinase, the claim should so recite. Furthermore, it is not clear which steps are the alternative referenced by the "or" in step (c); that is, it is not clear whether the method encompasses either (a), (b) and (c) OR (d); (a) and then either (b) and (c) OR (d); (a), (b), and then either (c) OR (d); or some other combination of steps. Clarification is required.

Because claims 2-23, 25, 27-41, and 43-51 depend from indefinite claim 18 and do not clarify these points of confusion, they must also be rejected under 35 U.S.C. 112, second paragraph.

***Claim Rejections - 35 USC § 103***

The amendment to claim 42 removing the indefinite portion has permitted the examiner to conduct a substantive art search on this claim and necessitates the following new rejection.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claim 42 is rejected under 35 U.S.C. 103(a) as being unpatentable over Pewzner-Jung et al. (1998, *Journal of Immunology* 161: 4634-4645; reference U) taken in view of Rickert et al. (1997, *Nucleic Acids Research* 25: 1317-1318; reference V) and Tam et al. (2000, U.S. Patent 6,086,913; reference A).

Pewzner-Jung teaches a method for targeting exogenous DNA sequences to the H chain immunoglobulin locus of mouse embryonic stem (ES) cells via homologous recombination (page 4635, column 1). Pewzner-Jung also teaches a method for making hybridomas comprising B cells (page 4638, last paragraph et seq.).

Pewzner-Jung does not explicity suggest a method in which the exogenous DNA comprises a recombinase recognition site. Pewzner-Jung does not teach an embodiment in which human cells derived from B lymphocytes are employed.

Rickert teaches a method for incorporating *lox*P-containing sequences into mouse B cells (page 1317, column 2). Rickert teaches that *lox*P is recognized by Cre recombinase (ibid.). Rickert teaches that incorporating DNA sequences into mouse B cells by homologous recombination was known in the art (ibid.).

Tam teaches that *lox*P-containing sequences may be added to human cells via recombination and are useful because the *lox*P sequence does not naturally occur in mammals (column 6, lines 28-47).

A person of ordinary skill in the art would have had a reasonable expectation of success in substituting B lymphocytes (or, more specifically, immortalized human cells derived from B lymphocytes) for the ES cells of Pewzner-Jung because Pewzner-Jung teaches methods for making these cells, Rickert teaches that B cells may be modified

via homologous recombination, and Tam teaches that human cells may be modified in this way. Therefore, given the overall teachings of the art, immortalized human cells derived from B lymphocytes (or, indeed, any mammalian cell) are functional equivalents for the mouse ES cells of Pewzner-Jung. Choosing the cell to employ in the method of Pewzner-Jung would have constituted routine optimization on the part of the skilled artisan at the time of filing.

Similarly, the person of ordinary skill in the art would have had a reasonable expectation of success in choosing a *lox*P-containing sequence, as taught by Rickert and Tam, as the exogenous DNA to employ in the method of Pewzner-Jung because Rickert and Tam teach that these sequences facilitate directed mutagenesis in cells modified to contain them. The skilled artisan would have been motivated to include *lox*P-containing sequences because Tam teaches that these sequences are rare in mammalian cells, so the Cre recombinase is not likely to modify other parts of the genome. Choosing the sequence of the exogenous DNA to employ in the method of Pewzner-Jung would have constituted routine optimization on the part of the skilled artisan at the time of filing.

It would therefore have been obvious to a person of ordinary skill in the art at the time the invention was made to choose immortalized human cells derived from B lymphocytes as the cell type and a *lox*P-containing DNA sequence as the exogenous DNA in the method of Pewzner-Jung because the art teachings as a whole indicate that mammalian cells are functional equivalents for each other in this application, as are DNA sequences.

Therefore, the invention as a whole would have been *prima facie* obvious to a person of ordinary skill at the time the invention was made.

Applicant's arguments regarding the rejections of record have been considered to the extent they read on this new ground of rejection. The remarks are found to be generally not pertinent, although it is noted that in the reply to the enablement rejection, applicant's comments at page 9 could be construed as an admission that the selection of the cell to employ in producing a functionalized cell containing a recombinase recognition site would have constituted routine experimentation at the time of the invention; the examiner declines to interpret the remarks as such at this time. However, if applicant wishes to clarify that the statements in the reply constitute an admission, these statements may be used to support this art rejection.

***No claims are allowed.***

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lora E. Barnhart whose telephone number is (571)272-1928. The examiner can normally be reached on Monday-Thursday, 9:00am - 5:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael G. Wityshyn can be reached on 571-272-0926. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Lora E Barnhart/
Primary Examiner, Art Unit 1651